Motion Controllers

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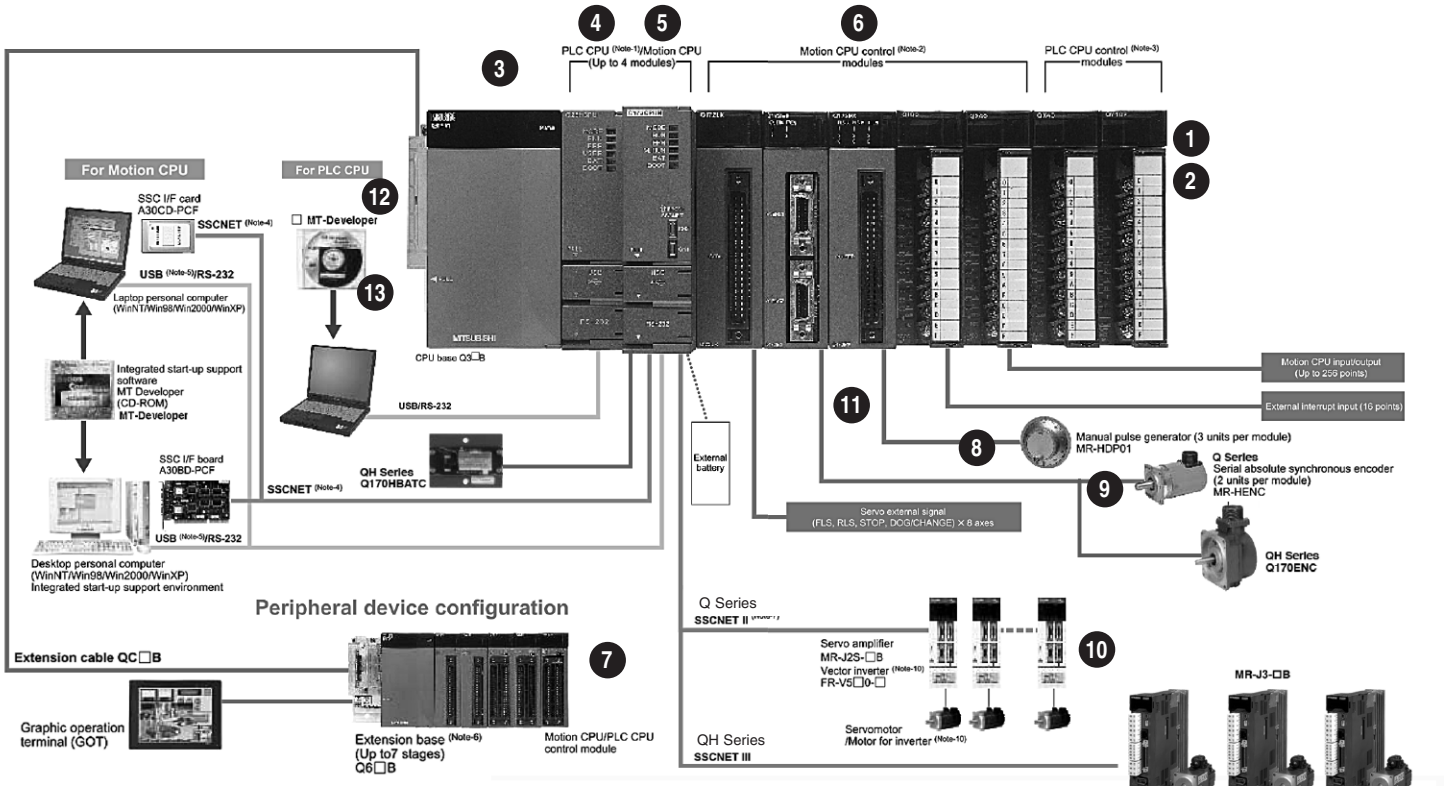
Q and QH Series Motion Controllers

The Q and QH Series Motion Controllers meet your needs for higher performance and smaller size. Ideal for 1.5 axes to 96 control axes. Various motion controller operating system software packages are also available. With increased high-speed motion, flexibility and compatibility of the Q Series Automation Platform, the Q and QH Series Motion Controllers are the best choice for next-generation motion control technology!



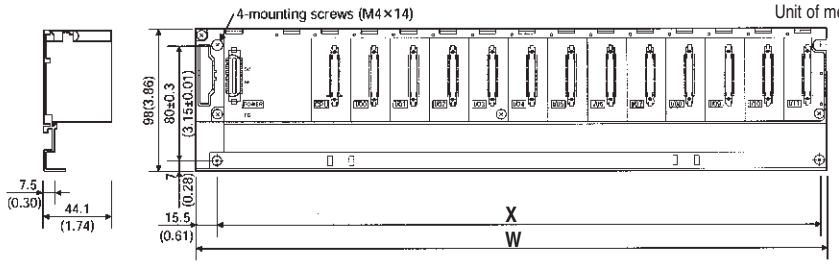
Note-1: The PLC CPU for Multiple CPU can be used in Q-mode.
Note-2: The Motion CPU control module which can be accessed from the PLC CPU is only input module.
Note-3: The other CPU control module cannot be accessed from the Motion CPU.
Note-4: Only 1 personal computer can be connected via SSCNET.
Note-5: USB cannot be used in Windows NT® 4.0.
Note-6: The module installed in the QA1S6□B cannot be controlled in the Motion CPU.
Note-7: The external battery for backup of the parameter/program is required at the continuously power off for 1000 hours or more. Refer to "SSCNET connecting method" for connection between the Motion CPU module and servo amplifier/external battery.

TO CREATE A SYSTEM, SELECT:

1. CPU Base Unit
2. Extension Base Unit*
3. Power Supply Module
4. Sequence CPU
5. Motion Controller CPU
6. Special Function Modules
7. Peripheral Equipment*
8. Manual Pulse Generator*
9. Synchronous Encoder*
10. Servo Amplifier/Motor
11. Cables/Connectors/Manuals
12. Operating Software
13. Programming Software

* Optional for the system

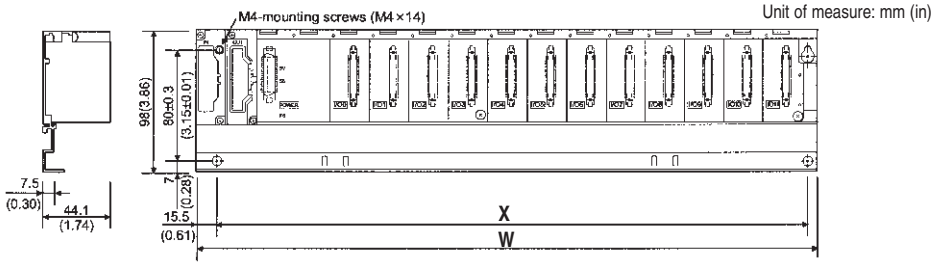
Q Series CPU Base Unit Information



Item \ Module	Q33B-E	Q35B-E	Q38B-E	Q312B-E
I/O Slots	3	5	8	12
Mounting Hole Width mm (in) (X)	169 ± 0.3 (6.65 ± 0.01)	224.5 ± 0.3 (8.85 ± 0.01)	308 ± 0.3 (12.14 ± 0.01)	419 ± 0.3 (16.51 ± 0.01)
Base Unit Width mm (in) (W)	189 (7.44)	245 (9.65)	328 (12.92)	439 (17.30)

Note: At least 1 I/O Slot must be used for the Q172(H)CPUN or Q173(H)CPUN. Refer to Q Series Automation Platform product section for more detailed information and specifications.

Q Series Extension Base Unit Information



Item \ Module	Q63B	Q65B	Q68B	Q612B
I/O Slots	3	5	8	12
Mounting Hole Width mm (in) (X)	167 ± 0.3 (6.57 ± 0.01)	222.5 ± 0.3 (8.77 ± 0.01)	306 ± 0.3 (12.06 ± 0.01)	417 ± 0.3 (16.43 ± 0.01)
Base Unit Width mm (in) (W)	189 (7.44)	245 (9.65)	328 (12.92)	439 (17.30)

Note: Refer to Q Series Automation Platform product section for more detailed information and specifications.

Power Supply Modules

Module	Q61P-A1	Q61P-A2	Q62P	Q63P	Q64P
Input Supply	100-120 VAC	200-240 VAC	100-240 VAC	24 VDC	100-120 VAC or 200-240 VAC
Dimensions mm (in)	55.2 x 98 x 90 (2.17 x 3.86 x 3.55)				55.2 x 98 x 115 (2.17 x 3.86 x 4.53)

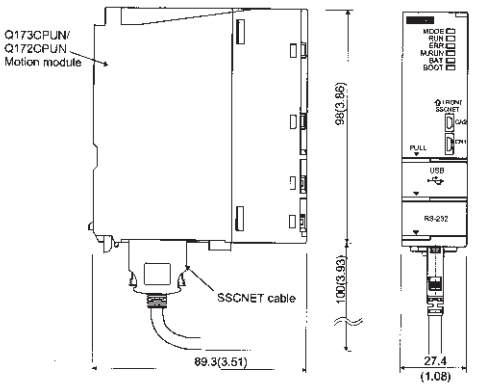
Note: Refer to Q Series Automation Platform product section for more detailed information and specifications.

Sequence PLC CPU Modules

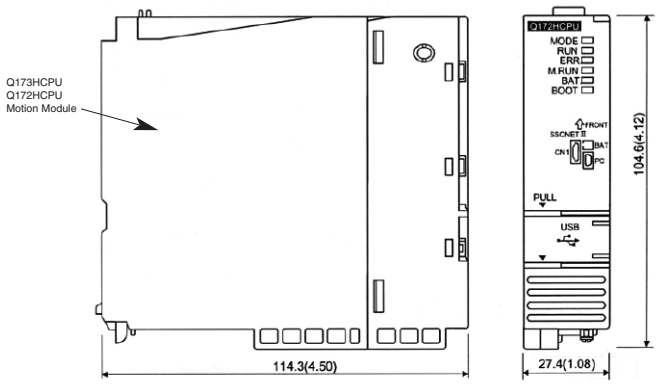
Module	Description
Q00CPU	Program capacity 8k, processing speed — LD=160ns, MOV=560ns
Q01CPU	Program capacity 14k, processing speed — LD=100ns, MOV=350ns
Q02CPU	Program capacity 28k, processing speed — LD=79ns, MOV=237ns
Q02HCPU	Program capacity 28k, processing speed — LD=34ns, MOV=102ns
Q06HCPU	Program capacity 60k, processing speed — LD=34ns, MOV=102ns
Q12HCPU	Program capacity 124k, processing speed — LD=34ns, MOV=102ns
Q25HCPU	Program capacity 252k, processing speed — LD=34ns, MOV=102ns

Note: Refer to Q Series Automation Platform product section for more detailed information and specifications.

Q Series Type



QH Series Type



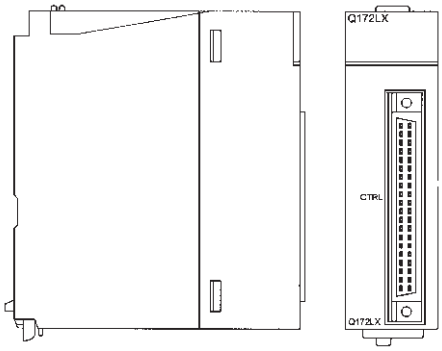
Q and QH Series Motion Controller CPU Modules

Unit of measure: mm (in)

Module		Q172CPUN (SSCNET II)	Q173CPUN (SSCNET II)	Q172HCPU (SSCNET III)	Q173HCPU (SSCNET III)
Number of Control Axes		8 axes	32 axes	8 axes	32 axes
Operation Cycle (Default)	SV13	0.88ms / 1 to 8 axes	0.88ms / 1 to 8 axes 1.77ms / 9 to 16 axes 3.55ms / 17 to 32 axes	0.44ms / 1 to 3 axes 0.88ms / 4 to 8 axes	0.44ms / 1 to 3 axes 0.88ms / 4 to 10 axes 1.77ms / 11 to 20 axes 3.55ms / 21 to 32 axes
	SV22	0.88ms / 1 to 4 axes 1.77ms / 5 to 8 axes	0.88ms / 1 to 4 axes 1.77ms / 5 to 12 axes 3.55ms / 13 to 24 axes 7.11ms / 25 to 32 axes	0.88ms / 1 to 4 axes 1.77ms / 5 to 8 axes	0.88ms / 1 to 5 axes 1.77ms / 6 to 14 axes 3.55ms / 15 to 28 axes 7.11ms / 29 to 32 axes
Interpolation Functions		Linear interpolation (4 axes max.), circular interpolation (2 axes), Helical interpolation (3 axes)			
Control Modes		PTP (Point to Point) control, Speed control, Speed-position control, Fixed-pitch feed, Constant speed control, Position follow-up control, Speed switching control, High-speed oscillation control, Synchronous control (SV22)			
Acceleration/ Deceleration Control		Automatic trapezoidal acceleration/deceleration, S-curve acceleration/deceleration			
Compensation		Backlash compensation, electronic gear		Backlash compensation, electronic gear, phase compensation (SV22)	
Programming Language		Motion SFC, dedicated instruction, mechanical support language (SV22)			
Program Capacity		14k steps			
Number of Positioning Points		3200 points (Positioning data can be designated indirectly)			
Programming Tool		IBM PC/AT			
Peripheral I/F		USB (12Mbps)/RS-232 (115.2kbps)/SSCNET II (5.6Mbps)		USB / SSCNET III	
Home Position Return Function		Proximity DOG type, count type, data set type (2 types)		Proximity DOG type (2 types), Count type (3 types), Data set type (2 types) DOG cradle type, Stopper type (2 types), Limit switch combined type (Home position return re-try function provided, home position shift function provided)	
JOG Operation Function		Provided			
Manual Pulse Generator Operation Function		Possible to connect 3 modules			
Synchronous Encoder		Possible to connect 8 modules	Possible to connect 12 modules	Possible to connect 12 modules	Possible to connect 8 modules
M-Code Function		M-code output function provided M-code completion wait function provided			
Limit Switch Output Function		Number of output points 32 point/axis. Watch data: Motion control data/Word device			
Absolute Position System		Made compatible by setting battery to servo amplifier. (Possible to select the absolute data method or incremental method for each axis)			
Number of SSCNET II I/F (*3)		2CH	5CH	—	—
Number of SSCNET III Systems (*1)		—	—	1 systems	2 system
Manual Pulse Generator/ Synchronous Encoder/ Servo External Signals Interface Module		Q172LX: 1 module usable Q172EX: 4 modules usable Q173PX: 3 modules usable (*2)	Q172LX: 4 modules usable Q172EX: 6 modules usable Q173PX: 4 modules usable (*2)	Q172LX: 1 module usable Q172EX: 4 modules usable Q173PX: 3 modules usable (*2)	Q172LX: 4 modules usable Q172EX: 6 modules usable Q173PX: 4 modules usable (*2)
Internal Current		1.62	1.75	1.14	1.25
Weight [kg]		0.25	0.25	0.22	0.23

Notes:
1. The servo amplifiers for SSCNET II cannot be used.
2. When using the incremental synchronous encoder by using SV22, you can use 4 modules. When connecting the manual pulse generator, you can use only one module.
3. The servo amplifiers for SSCNET III cannot be used.

Q172LX



Q Series Servo External Signals Interface Module

The Q172LX is assigned a set of input numbers per axis. The system setting of the positioning software package is used to determine the I/O numbers corresponding to the axis numbers.

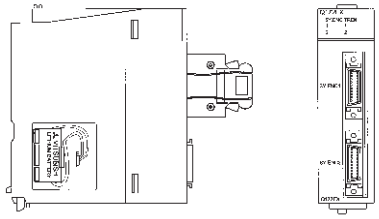
Servo External Signal	Application	Number of Points
Upper Stroke Limit Input (FLS)	For detection of upper and lower stroke limits	32 points (4 points/8 axes)
Lower Stroke Limit Input (RLS)		
Stop Signal Input (STOP)	For stopping under speed or positioning control	
Proximity DOG/ Speed-Position Switching Input (DOG/CHANGE)	For detection of proximity DOG at proximity DOG or count type home position return or for switching from speed to position switching control.	

Note: Signal No. 1 to 8 can be assigned to the specified axis. To make the assignment, use the system settings of the positioning software package.

Module		Q172LX
Number of Inputs		Servo external signals: 32 points (Upper stroke limit, Lower stroke limit, Stop input, Proximity DOG/Speed-position switching signal) (4 points x 8 axes)
Input Method		Sink/Source type
Isolation Method		Photocoupler
Rated Input Voltage		12/24 VDC
Rated Input Current		12 VDC 2mA/24 VDC 4mA
Operating Voltage Range		10.2 to 26.4 VDC (12/24 VDC +10/ -15%, ripple ratio 5% or less)
ON Voltage/Current		Min.10 VDC or more/2.0mA or more
OFF Voltage/Current		Max.1.8 VDC or less/0.18mA or less
Input Resistance		Approx. 5.6KΩ
Response time of the Upper/Lower Stroke Limit and STOP Signal	OFF to ON	1ms
	ON to OFF	
Response Time of the Proximity DOG, Speed-Position Switching Signal	OFF to ON	0.4ms/0.6ms/1ms (CPU parameter setting, Default 0.4ms)
	ON to OFF	
Common Terminal Arrangement		32 points/common (common terminal: B1, B2)
Indicates to Display		ON indication (LED)
External Connector Type		40 pin connector
Applicable Wire Size		0.3mm²
Applicable Connector for the External Connection		A6CON1 (Attachment), A6CON2, A6CON3 (Optional)
Applicable Connector/ Terminal Block Converter Module		A6TBXY36, A6TBXY54, A6TBXY70 (Optional)
Number of I/O Occupying Points		32 points (I/O allocation: Intelligent, 32 points)
Internal Current Consumption (5VDC) [A]		0.05
Exterior Dimensions [mm (inch)] (W x H x D)		27.4 x 98 x 89.3 (1.08 x 3.86 x 3.52)
Weight [kg]		0.15

Q Series Serial Absolute Synchronous Encoder Interface Module

Q172EX



Tracking Enable Signal Input

Module		Q172EX
Number of Inputs		Tracking enable signal: 2 points
Input Method		Sink/Source type
Isolation Method		Photocoupler
Rated Input Voltage		12/24 VDC
Rated Input Current		12 VDC 2mA/24 VDC 4mA
Operating Voltage Range		10.2 to 26.4 VDC (12/24 VDC +10/ -15%, ripple ratio 5% or less)
ON Voltage/Current		10 VDC or more/2.0mA or more
OFF Voltage/Current		1.8 VDC or less/0.18mA or less
Input Resistance		Approx. 5.6KΩ
Response Time	OFF to ON	0.4ms/0.6ms/1ms (CPU parameter setting, Default 0.4ms)
	ON to OFF	
Common Terminal Arrangement		1 point/common (Common terminal: TREN.COM)
Display		ON indication (LED)

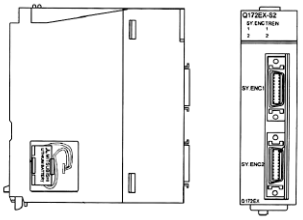
Serial Absolute Synchronous Encoder I/F

Module	Q172EX
Applicable Signal Types	Differential-output type : (SN75C11168 or equivalent)
Transmission Method	Serial communications
Synchronous Method	Counter-clock-wise (viewed from end of shaft)
Communication Speed	2.5 Mbps
Applicable Types	MR-HENC
Position Detection Method	Absolute (ABS) method
Resolution	16384 PLS/rev (14bit)
Number of Modules	2/module
External Connector Type	20 pin connector
Applicable Connector for the External Connection	MR-J2CNS (Optional)
Applicable Wire	UL20276 AWG#22 6 Pair
Recommended Cables	MR-JHSCBL□M-H [□ = cable length 2m (6.56 ft.), 5m (16.4 ft.), 10m (32.8 ft.), 20m (65.6 ft.), 30m (98.4 ft.)] (Note)
Cable Length	Max. 30m (98.4 ft.)
Back up the Absolute Position	Depends on A6BAT/MR-BAT
Battery Service Life Time (Value in Actual)	15000 [h], (Example of encoders x 2, ambient temperature 40°C (104°F)) 30000 [h], (Example of encoders x 1, ambient temperature 40°C (104°F))
Number of I/O Occupying Points	32 points (I/O allocation: Intelligent, 32 points)
Internal Current Consumption (5VDC) [A]	0.07
Exterior Dimensions [mm (inch)]	98(H) x 27.4(W) x 89.3(D) (3.86(H) x 1.08(W) x 3.52(D))
Weight [kg]	0.15

Note: Use these cables when the tracking enable signal is not used. Customer must make a cable when the tracking enable signal is used.

QH Series Serial Absolute Synchronous Encoder Interface Module

Q172EX-S2 / Q172EX-S3



Tracking Enable Signal Input

Module		Q172EX-S2 / Q172EX-S3
Number of Inputs		Tracking enable signal: 2 points
Input Method		Sink/Source type
Isolation Method		Photocoupler
Rated Input Voltage		12/24 VDC
Rated Input Current		12 VDC 2mA/24 VDC 4mA
Operating Voltage Range		10.2 to 26.4 VDC (12/24 VDC +10 / -15%, ripple ratio 5% or less)
ON Voltage/Current		10 VDC or more/2.0mA or more
OFF Voltage/Current		1.8 VDC or less/0.18mA or less
Input Resistance		Approx. 5.6KΩ
Response Time	OFF to ON	0.4ms/0.6ms/1ms (CPU parameter setting, Default 0.4ms)
	ON to OFF	
Common Terminal Arrangement		1 point/common (Common terminal: TREN.COM)
Display		ON indication (LED)

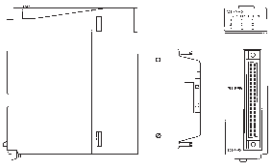
Serial Absolute Synchronous Encoder I/F

Module	Q172EX-S2	Q172EX-S3
Applicable Signal Types	Differential-output type : (SN75C1168 or equivalent)	
Transmission Method	Serial communications	
Synchronous Method	Counter-clock-wise (viewed from end of shaft)	
Communication Speed	2.5 Mbps	
Applicable Types	Q170ENC	
Position Detection Method	Absolute (ABS) method	
Resolution	262144 PLS/rev (18bit)	
Number of Modules	2/module	
External Connector Type	20 pin connector	
Applicable Connector for the External Connection	Q170ENCCNS (Optional)	
Applicable Wire	MB14B0023 12 Pair	
Recommended Cables	Q170ENCCBL□M □= cable length 2m (6.56 ft.), 5m (16.4 ft.), 10m (32.81 ft.), 20m (65.62 ft.), 30m (98.43 ft.), 50m (164.04 ft.)] (Note)	
Cable Length	Up to 50m (164.04 ft.)	
Back up the Absolute Position	Depends on A6BAT/MR-BAT	
Battery Service Life Time (Value in Actual)	12000 [h], (Example of encoders x 2, ambient temperature 40°C (104°F)) 24000 [h], (Example of encoders x 1, ambient temperature 40°C (104°F))	
Memory of Data Exchange	None	Provided
Number of I/O Occupying	32 points (I/O allocation: Intelligent, 32 points)	
Internal Current Consumption (5VDC) [A]	0.07	
Exterior Dimensions [mm	98H x 27.4W x 90D (3.86H x 1.08W x 3.54D)	
Weight [kg]	0.15	

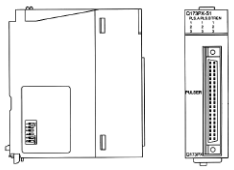
Note: Use these cables when the tracking enable signal is not used. Customer must make a cable when the tracking enable signal is used.

Q and QH Series Manual Pulse Generator Interface Module

Q173PX



Q173PX-S1



Tracking Enable Signal Input

Module	Q173PX
Number of Inputs	Tracking enable signal: 3 points
Input Method	Sink/Source type
Isolation Method	Photocoupler
Rated Input Voltage	12/24 VDC
Rated Input Current	12 VDC 2mA/24 VDC 4mA
Operating Voltage Range	10.2 to 26.4 VDC (12/24 VDC +10/ -15%, ripple ratio 5% or less)
ON Voltage/Current	10 VDC or more / 2.0 mA or more
OFF Voltage/Current	1.8 VDC or less / 0.18 mA or less
Input Resistance	Approx. 5.6KΩ
Common Terminal Arrangement	1 point/common (Common terminal: TREN.COM)
Display	ON indication (LED)

Serial Absolute Synchronous Encoder I/F

Module		Q173PX	Q173PX-S1 (QH Only)
Number of Modules (Max.)		3 per CPU	
Voltage-output/ Open collector	High Voltage	3.0 to 5.25 VDC	
	Low Voltage	0 to 1.0 VDC	
Differential-output type (26LS31 or equivalent)	High Voltage	2.0 to 5.25 VDC	
	Low Voltage	0 to 0.8 VDC	
Input Frequency		Max. 200kpps (After magnification by 4)	
Applicable Types		Voltage-output type/Open-collector type (5 VDC), Recommended product: MR-HDP01; Differential-output type: (26LS31 or equivalent)	
External Connector Type		40 pin connector	
Applicable Wire Size		0.3mm²	
Applicable Connector for the External Connection		A6CON1 (Attachment) A6CON2, A6CON3 (Optional)	
Applicable Connector/ Terminal Block Converter Module		A6TBXY36, A6TBXY54, A6TBXY70 (Optional)	
Cable Length	Voltage-Output/Open Collector Output Type	30m (98.43 ft.) (Open collector output type: 10m (32.81 ft.))	
	Differential-Output Type		
Memory for Data Exchange		None	Provided
Number of I/O Occupying Points		32 points (I/O allocation: Intelligent, 32 points)	
Internal Current Consumption		0.11	
Exterior Dimensions [mm (inch)]		98H x 27.4W x 90D (3.86H x 1.08W x 3.54D)	
Weight [kg]		0.15	

Operating Environment

Item	WindowsNT® 4.0 (Service Pack 2 or later) or Windows® 98	Windows® 2000	Windows® XP
CPU	Recommended Pentium® 133MHz or more	Recommended Pentium® II 233MHz or more	Recommended Pentium® II 450MHz or more
Memory Capacity	Recommended 32MB or more	Recommended 64MB or more	Recommended 192MB or more
Hard Disk Free Space	SW6RNC-GSVE: 280MB + SW6RNC-GSVHELPE: 85 MB (Possible to select installation)		
Display	SVGA (resolution 800 x 600 pixels, 256 colors) or more		
Application Software	Word 97, Excel 97 or Word 2000, Excel 2000 (For document printing) Visual C++ 4.0 or more, Visual Basic 4.03 (32 bit) or more (For communication API function)		

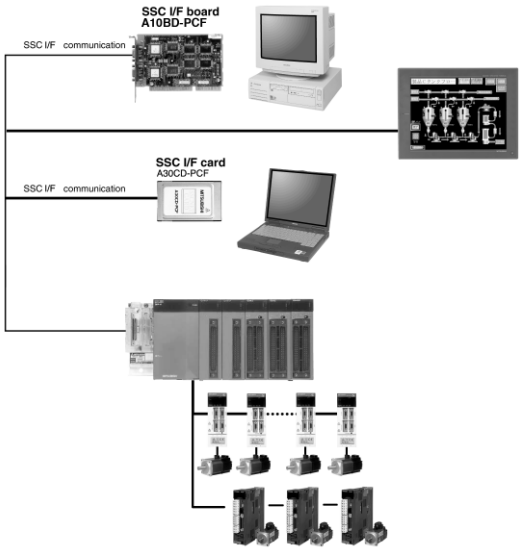
Note:
WindowsNT®, Windows®, Word, Excel, Visual C++ and Visual Basic are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Pentium® is a trademark or registered trademark of Intel Corporation or its subsidiaries in the United States and/or other countries.

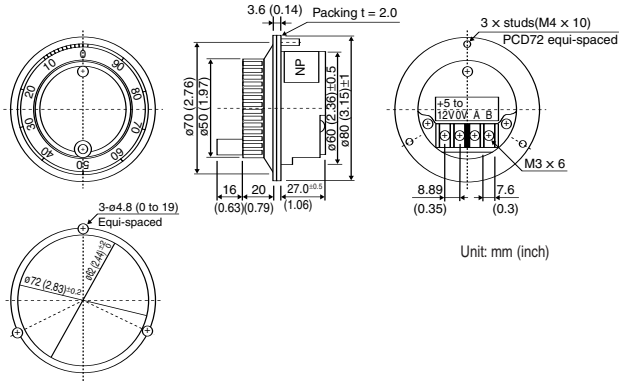
Peripheral Equipment

Hardware Description	Description
A10BD-PCF	SSC I/F PCI slot board for PC
A30CD-PCF (Note)	SSC I/F PCMCIA card for laptop
HMI	Please select the HMI from the GOT1000/ E Series Human Machine Interfaces section in this Product Selection Guide

Note: I/F card only – See Programming Software section model number MT-DEV-SET □□ for the complete I/F Kit. (Software, PCMCIA, Cable). When using the A30CD-PCF, the PC card driver for WindowsNT® provided by the personal computer manufacturer must be used.

Peripheral Equipment

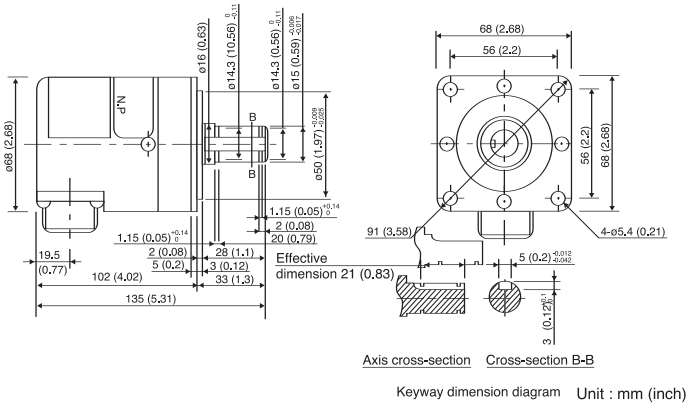




Q and QH Series Manual Pulse Generator (optional)

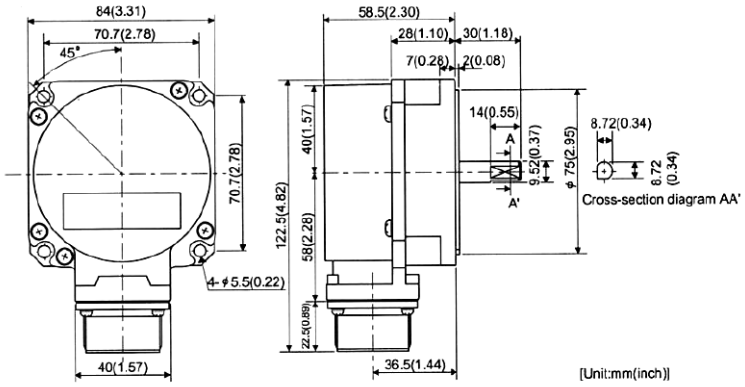
Item	MR-HDP01
Pulse Resolution	25 PLS/rev (100 PLS/rev at magnification of 4)
Output Method	Voltage - output (power supply voltage - 1V or more), Output current = Up to 20 mA
Power Supply Voltage	4.5 to 13.2 VDC
Consumption Current	60
Life	1,000,000 revolutions at 200 r/min
Permitted Axis Load	Radial load : Max. 19.6N Thrust load : Max. 9.8N
Pulse Signal Status	2 signals: A phase, B: phase, 90° phase difference
Friction Torque	0.1N/m (at 20°C (68°F))
Operating Temperature	-10°C to +60°C (14°F to 140°F)
Weight kg (lbs)	0.4 (0.88)

Note: If using an external power supply, it needs to be 5 VDC.



Q Series Synchronous Encoder (optional)

Item	MR-HENC
Resolution	16384 PLS/rev
Direction on Increase	Counter clockwise (viewed from end of axis)
Protective Construction	IP52 (dust proof, oil-proof)
Permitted Axis Load	Radial: Max 98N Thrust: Max 49N
Permissible Rotation Speed	4300 r/min
Permissible Angular Acceleration	4000 rad/s
Operating Temperature	-5°C to 55°C
Weight kg (lbs)	1.5 (3.3)



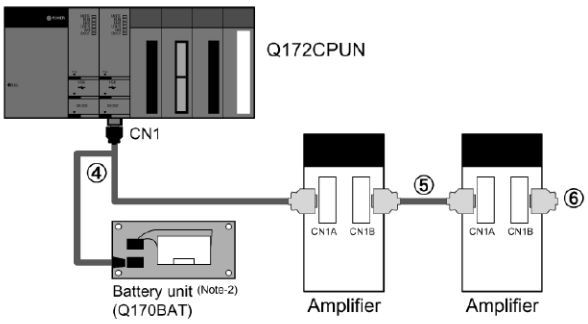
QH Series Synchronous Encoder (optional)

Item	Q170ENC
Resolution	262144 PLS/rev
Transmission Method	Serial Communications (Connected to Q172EX-S2/S3)
Direction on Increase	Counter clockwise (viewed from end of shaft)
Protective Construction (*1)	IP65 (dust proof, waterproof) except for the shaft-through portion
Permitted Speed at ON	3600 r/min
Permitted Speed at OFF (*2)	500 r/min
Permitted Axis Load	Radial load: Max 19.6N Thrust load: Max 9.8N
Runout at Input Shaft Tip	0.02 mm (0.00079 in) or less 15 mm (0.59 in) from tip
Recommended Coupling	Bellows coupling
Permissible Angular Acceleration	40,000 rad/s^2
Internal Current Consumption	0.2 (A)
Connecting Cable	Q170ENCCBL☐M ☐= cable length 2m (6.56 ft.), 5m (16.4 ft.), 10m (32.8 ft.), 20m (65.6 ft.), 30m (98.4 ft.), 50m (164.04 ft.)]
Communication Method	Differential driver/receiver conforming to RS-422A
Transmission Distance	Up to 50 m (164.04 ft)
Operating Temperature	-5°C to 55°C (23 to 131°F)
Weight kg (lbs)	0.6 (1.3)

Notes:
1. If an "o-ring" is required, please purchase separately.
2. If it exceeds a permitted speed at power OFF, a position displacement is generated.

Q and QH Series Cables and Connectors

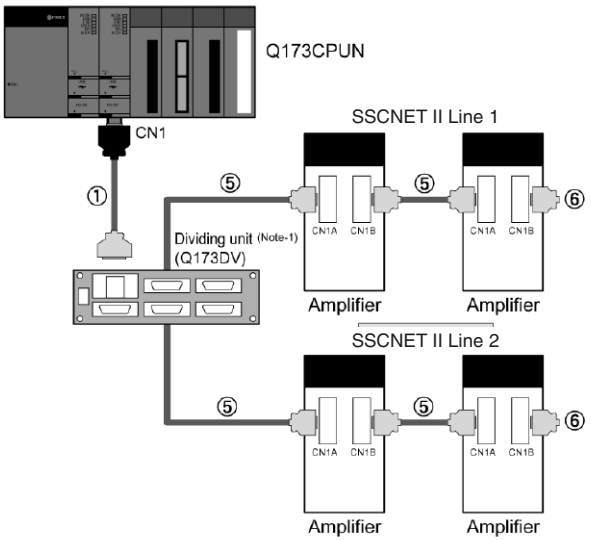
Q Series
Connection between Q172CPUN and servo amplifiers



(Note-2) When using the external battery, install the Battery (A6BAT/MR-BAT) to the Battery unit (Q170BAT).

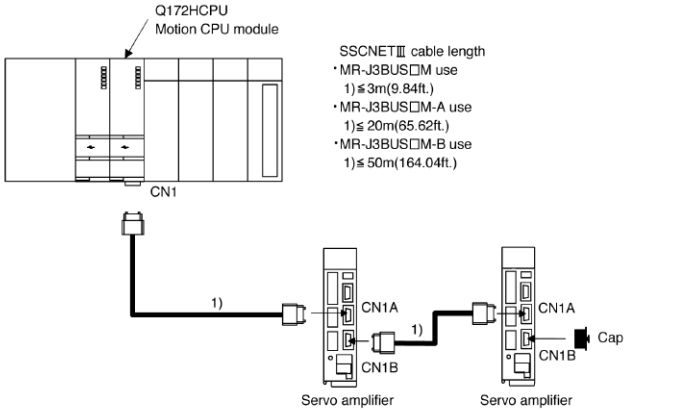
The external battery is used when the Motion CPU module will be without power for longer than 1000 hours. If the external battery is not installed and 1000 hours expire, all memory will be lost.

Q Series
Connection between Q173CPUN and servo amplifiers



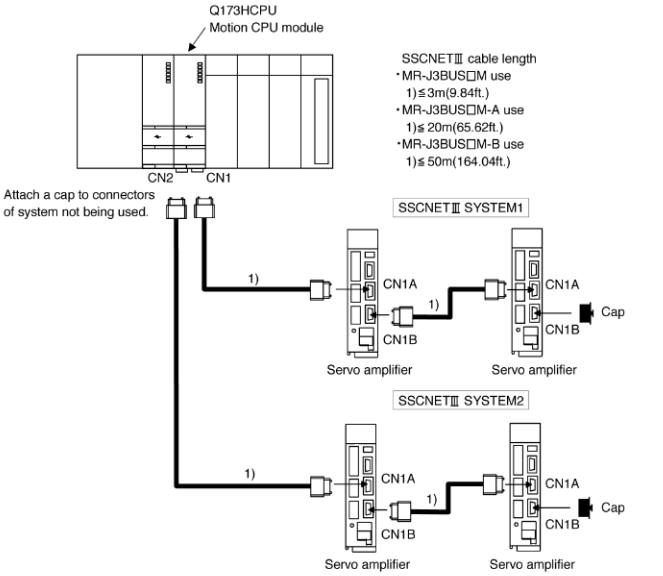
(Note-1) When using the external battery, install the Battery (A6BAT/MR-BAT) to the Dividing unit (Q173DV).

QH Series
Connection between Q172HCPU and servo amplifiers



(Note): It cannot communicate with that the connection of CN1A and CN1B is mistaken.

QH Series
Connection between Q173HCPU and servo amplifiers



(Note): It cannot communicate with that the connection of CN1A and CN1B is mistaken.

Miscellaneous Parts for the System

Model Number	Model Type	Description
Q173DV	Q Series	SSCNET II signal branching card for the Q173CPUN with battery holder. Servo branch dividing unit for up to 4 branches of 8 servo amplifiers
Q170BAT	Q Series	A board to hold the battery when connected to the Q172J2BCBL_M-B cables, going to the Q172CPUN
MR-BAT or A6BAT	Q and QH Series	Battery to be used with the Q173DV, Q170BAT or Q170ENC
Q6BAT	QH Series	Battery for IC-RAM memory backup of the Q173HCPU/Q172HCPU module.
Q170HBATC	QH Series	Battery holder for Q6BAT (Battery is not supplied, order Q6BAT separately)

Cables for Q172CPUN (SSCNET II) to MR-J2S-B Servo Amplifiers

Model Number	Model Type	Description
Q172J2BCBL05M-B	Q Series	0.5 meter SSCNET II cable from Q172CPUN to MR-J2S-B with a connection for the Q170BAT unit
Q172J2BCBL1M-B	Q Series	1.0 meter SSCNET II cable from Q172CPUN to MR-J2S-B with a connection for the Q170BAT unit
Q172J2BCBL5M-B	Q Series	5.0 meter SSCNET II cable from Q172CPUN to MR-J2S-B with a connection for the Q170BAT unit

Cables for Q172H/173HCPU (SSCNET III) to MR-J3-B Servo Amplifiers

Model Number	Model Type	Description
MR-J3BUS015M	QH Series	0.15 meter SSCNET III (plastic) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS03M	QH Series	0.3 meter SSCNET III (plastic) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS05M	QH Series	0.5 meter SSCNET III (plastic) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS1M	QH Series	1 meter SSCNET III (plastic) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS3M	QH Series	3 meter SSCNET III (plastic) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS5M-A	QH Series	5 meter SSCNET III (plastic) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS10M-A	QH Series	10 meter SSCNET III (plastic) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS20M-A	QH Series	20 meter SSCNET III (plastic) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS30M-B	QH Series	30 meter SSCNET III (glass) cable from Q172/H173HCPU to MR-J3-B Amplifier
MR-J3BUS40M-B	QH Series	40 meter SSCNET III (glass) cable from Q172H/173HCPU to MR-J3-B Amplifier
MR-J3BUS50M-B	QH Series	50 meter SSCNET III (glass) cable from Q172H/173HCPU to MR-J3-B Amplifier

Cables for Q173CPUN (SSCNET II) to Q173DV Dividing Unit

Model Number	Model Type	Description
Q173DVCBL05M	Q Series	0.5 meter SSCNET II Cable from the Q173CPUN to the Q173DV dividing unit
Q173DVCBL1M	Q Series	1.0 meter SSCNET II Cable from the Q173CPUN to the Q173DV dividing unit

Cables for Q173DV to MR-J2S-B Servo Amplifiers

Model Number	Model Type	Description
MR-J2HBUS05M	Q Series	0.5 Meter SSCNET II cable from the Q173DV dividing unit to MR-J2S-B Amplifier
MR-J2HBUS1M	Q Series	1 Meter SSCNET II cable from the Q173DV dividing unit to MR-J2S-B Amplifier
MR-J2HBUS5M	Q Series	5 Meter SSCNET II cable from the Q173DV dividing unit to MR-J2S-B Amplifier

Connectors for Servo Amplifiers

Model Number	Model Type	Description
MR-A-TM	Q Series	Terminal connector for last MR-J2S-B Servo Amplifier by SSCNET II
Connector Cap	QH Series	Comes with 2 caps on the MR-J3-B amplifiers standard

Cables for CPU to Extension Base Unit or Extension Base Unit to Extension Base Unit

Model Number	Model Type	Description
QC05B	Q and QH Series	0.45 meter extension cable
QC06B	Q and QH Series	0.6 meter extension cable
QC12B	Q and QH Series	1.2 meter extension cable
QC30B	Q and QH Series	3 meter extension cable
QC50B	Q and QH Series	5 meter extension cable
QC100B	Q and QH Series	10 meter extension cable

Cables and Connectors for Special Function Modules

Model Number	Model Type	Description
A6CON1	Q and QH Series	Q173PX connector to use the manual pulse generator and incremental synchronous encoder or Q172LX connector to use the servo external input signals.
QD75MCBL-2M	Q and QH Series	2 meter I/O pigtail cable to use in place of the A6CON1 connector.
QD75MCBL-5M	Q and QH Series	5 meter I/O pigtail cable to use in place of the A6CON1 connector.
QD75MCBL-10M	Q and QH Series	10 meter I/O pigtail cable to use in place of the A6CON1 connector.
MR-JHSCBL2M-H	Q Series	2 meter cable from the Q172EX to the MR-HENC absolute synchronous encoder
MR-JHSCBL5M-H	Q Series	5 meter cable from the Q172EX to the MR-HENC absolute synchronous encoder
MR-JHSCBL10M-H	Q Series	10 meter cable from the Q172EX to the MR-HENC absolute synchronous encoder
MR-JHSCBL20M-H	Q Series	20 meter cable from the Q172EX to the MR-HENC absolute synchronous encoder
MR-JHSCBL30M-H	Q Series	30 meter cable from the Q172EX to the MR-HENC absolute synchronous encoder
Q170ENCCNS	QH Series	Connector set for the Q170ENC absolute synchronous encoder
Q170ENCCBL2M	QH Series	2 meter cable from the Q172EX-S2/S3 to the Q170ENC absolute synchronous encoder
Q170ENCCBL5M	QH Series	5 meter cable from the Q172EX-S2/S3 to the Q170ENC absolute synchronous encoder
Q170ENCCBL10M	QH Series	10 meter cable from the Q172EX-S2/S3 to the Q170ENC absolute synchronous encoder
Q170ENCCBL20M	QH Series	20 meter cable from the Q172EX-S2/S3 to the Q170ENC absolute synchronous encoder
Q170ENCCBL30M	QH Series	30 meter cable from the Q172EX-S2/S3 to the Q170ENC absolute synchronous encoder
Q170ENCCBL50M	QH Series	50 meter cable from the Q172EX-S2/S3 to the Q170ENC absolute synchronous encoder

Cables for Peripheral Equipment

Model Number	Model Type	Description
Q170BDCBL3M	Q and QH Series	3 meter cable for SSC I/F PCI slot board for PC
Q170BDCBL5M	Q and QH Series	5 meter cable for SSC I/F PCI slot board for PC
Q170BDCBL10M	Q and QH Series	10 meter cable for SSC I/F PCI slot board for PC
Q170CDCBL3M (Note)	Q and QH Series	3 meter cable for SSC I/F PCMCIA card for laptop
Q170CDCBL5M (Note)	Q and QH Series	5 meter cable for SSC I/F PCMCIA card for laptop
Q170CDCBL10M (Note)	Q and QH Series	10 meter cable for SSC I/F PCMCIA card for laptop

Note: I/F cable only – see programming software section model number MT-DEV-SET-C_ for the complete I/F kit. (software, PCMCIA card and cable)

Manuals

Model Number	Model Type	Description
IB(NA)0300043	Q Series	Q172CPUN/Q173CPUN motion controller (SV13/SV22) programming manual (Real)
IB(NA)0300044	Q Series	Q172CPUN/Q173CPUN motion controller (SV22) programming manual (Virtual)
IB(NA)0300042	Q Series	Q172CPUN/Q173CPUN motion controller (SV13/SV22) programming manual (SFC)
IB(NA)0300040	Q Series	Q172CPUN/Q173CPUN motion controller user's manual
SH(NA)030007	Q Series	MR-J2S-B servo amplifier instruction manual
SH(NA)3181	Q Series	MR-J2S servo motor instruction manual
IB(NA)0300110	QH Series	Q172HCPU/Q173HCPU motion controller user's manual
IB(NA)0300111	QH Series	Q172HCPU/Q173HCPU motion controller programming manual (Common)
IB(NA)0300112	QH Series	Q172HCPU/Q173HCPU motion controller (SV13/SV22) programming manual (SFC)
IB(NA)0300113	QH Series	Q172HCPU/Q173HCPU motion controller (SV13/SV22) programming manual (REAL)
IB(NA)0300114	QH Series	Q172HCPU/Q173HCPU motion controller (SV22) programming manual (VIRTUAL)
SH(NA)030051	QH Series	MR-J3-B servo amplifier instruction manual
SH(NA)030041	QH Series	MR-J3 servo motor instruction manual

MT Developer Software

Operating system software packages

Dedicated language

Motion SFC compatible

SV13 Conveyor assembly use

[Applications] Electronic component assembly, Inserter, Feeder, Molder, Conveying equipment, Paint applicator, Chip mounting, Wafer slicer, Loader/Unloader, Bonding machine, X-Y table

Linear interpolation (1 to 4 axes), Circular interpolation, Constant-speed, Fixed-pitch feed, Speed control with fixed position stop, Speed switching, Speed control, Speed/position switching

Motion SFC compatible

Automatic machinery use **SV22**

[Applications] Press feeder, Food processing, Food packaging, Winding machine, Spinning machine, Textile machine, Printing machine, Book binder, Tire molder, Paper-making machine

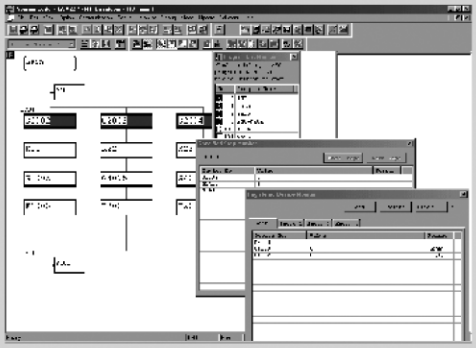
Synchronous control, Electronic shaft, Electronic clutch, Electronic cam, Draw control

Mechanical support language

Programming Software

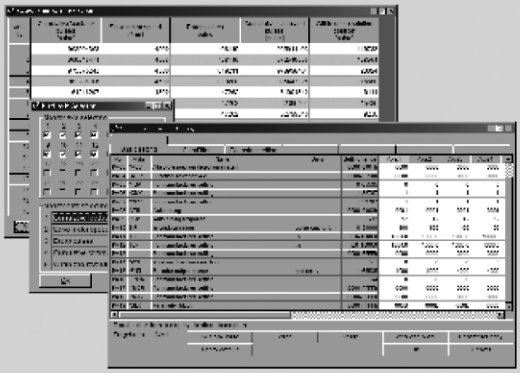
■Motion SFC monitor

●Color indication of executing step on flow chart
●Device monitor and test of execution/specification step



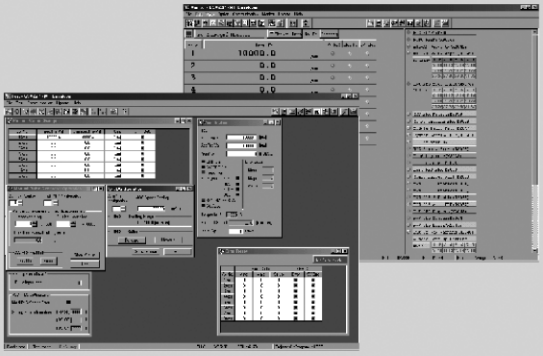
■Servo parameter setting

●Direct start of MT Developer in the parameter setting screen



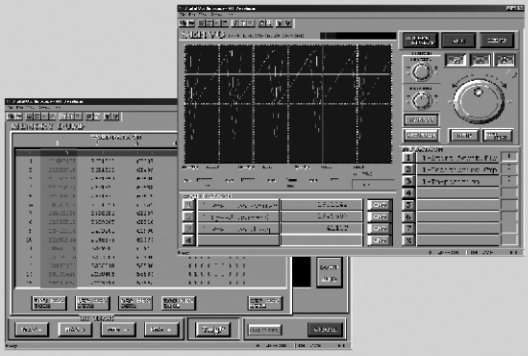
■Monitor/Test

●Current value monitor/Axis monitor/Error history monitor
●Various tests such as home position return/JOG operation by clicking mouse



■Digital oscilloscope

●Data sampling synchronized with motion control cycle
●Waveform display/Dump display/Fail saving/Printing



Q Series Integrated Start-up Support Software Packages

Model Number	Description	Details
MT-DEV-PRO-☐☐*	SW6RNC-GSV-E (Integrated start-up support software)	Conveyor assembly software: SW6RN-GSV13P Automatic machinery software: SW6RN-GSV22P Cam data creation software: SW3RN-CAMP Digital oscilloscope software: SW6RN-DOSCP Communication system software: SW6RN-SNETP Document print software: SW3RN-DOCPRNP, SW20RN-DOCPRNP Help section: SW6RNC-GSVHELPE
	Q Series Q172CPUN (SSCNET II) Operating Software (OS)	SW6RN-SV13QD: For conveyor assembly
		SW6RN-SV22QC: For automatic machinery
	Q Series Q173CPUN (SSCNET II) Operating Software (OS)	SW6RN-SV13QB: For conveyor assembly
		SW6RN-SV22QA: For automatic machinery
	QH Series Q172HCPU (SSCNET III) Operating Software (OS)	SW6RN-SV13QM: For conveyor assembly
		SW6RN-SV22QL: For automatic machinery
	QH Series Q173HCPU (SSCNET III) Operating Software (OS)	SW6RN-SV13QK: For conveyor assembly
		SW6RN-SV22QJ: For automatic machinery
	Installation manual	
MT-DEV-SET-☐☐*	MT-DEV-PRO-☐☐*	
	A30CD-PCF (SSC I/F card (PCMCIA TYPE II 1CH/card))	
	Q170CDCBL3M (A30CD-PCF cable 3m (9.84 ft.))	
MT-DEV-GXPRO-☐☐*	MT-DEV-PRO-☐☐*	
	GX-DEV-C1 (GX Developer software)	
MT-DEV-GXSET-☐☐*	MT-DEV-SET-☐☐*	
	GX-DEV-C1 (GX Developer software)	

*See Table 1 below.

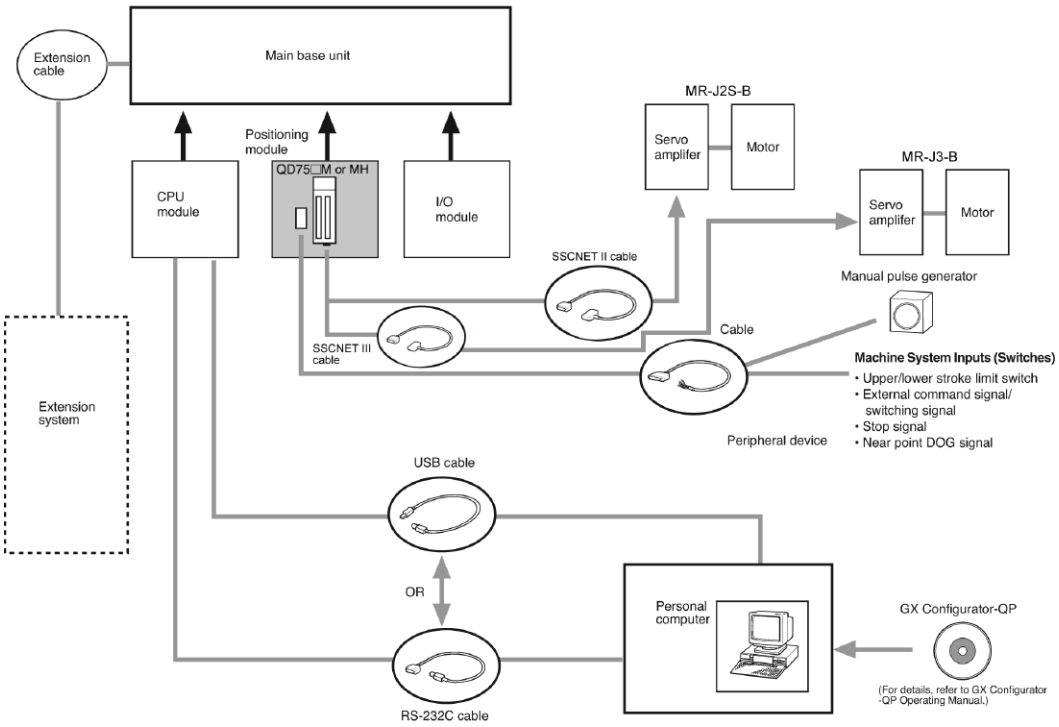
Table 1: Select the user license necessary.

Model Number	Description
C1	Single user license – can be used on 1 computer at a time
C5	5 user license – can be used on up to 5 computers at a time
C10	10 user license – can be used on up to 10 computers at a time
C25	25 user license – can be used on up to 25 computers at a time
C50	50 user license – can be used on up to 50 computers at a time

QD75M and QD75MH Positioning Modules for Q Series Automation Platform

One of Q Series' strengths is the ability to integrate motion control directly onto your system. If a Q Series motion CPU is not required the QD75M and QD75MH positioning modules provide a range of alternative motion control capabilities. The QD75M and QD75MH are connected to MR-J2S-B/MR-J3-B servo amplifiers by means of the Servo System Control Network (SSCNET II or III). This allows compatibility with absolute position systems, between the QD75M / QD75MH and servo amplifiers (overall distance of 30 meters). Key features include: one, two and four axis versions available; 1MHz output capacity; Support up to 256 axes; 4 axis linear interpolation; Circular interpolation; Variety of control schemes (point to point, fixed feed, speed, speed/position & position/speed).

QD75M and QD75MH System Diagram



QD75M (SSCNET II) Positioning Modules

Number of Controllable Axes	Module Type
	For Building Block Type (A Series)
1 Axis	QD75M1
2 Axis	QD75M2
4 Axis	QD75M4

QD75MH (SSCNET III) Positioning Modules

Number of Controllable Axes	Module Type
1 Axis	QD75MH1
2 Axis	QD75MH2
4 Axis	QD75MH4

QD75M Parts List

Model Number	Model Type	Description
QD75M1	QD75M	SSCNET II Single axis motion controller for Q Series Automation Platform
QD75M2	QD75M	SSCNET II Dual axis motion controller for Q Series Automation Platform
QD75M4	QD75M	SSCNET II 4 axis motion controller for Q Series Automation Platform
QD75MH1	QD75MH	SSCNET III Single axis motion controller for Q Series Automation Platform
QD75MH2	QD75MH	SSCNET III Dual axis motion controller for Q Series Automation Platform
QD75MH4	QD75MH	SSCNET III 4 axis motion controller for Q Series Automation Platform
GX-CONFIG-QP-C1	QD75M and QD75MH	Programming software for QD75M and QD75MH motion modules
MR-HDP01	QD75M and QD75MH	Optional manual pulse generator
Cables and Accessories		
A6CON1	QD75M and QD75MH	Spare I/O connector, solder type
A6CON2	QD75M and QD75MH	Spare I/O connector, crimp type
A6CON3	QD75M and QD75MH	Spare I/O connector, IDC type
A6CON4	QD75M and QD75MH	Spare I/O connector, low profile type
QD75MCBL2M	QD75M and QD75MH	I/O cable – pigtail (order 2 for QD75M4 or QD75MH4) 2 meter
QD75MCBL5M	QD75M and QD75MH	I/O cable – pigtail (order 2 for QD75M4 or QD75MH4) 5 meter
QD75MCBL10M	QD75M and QD75MH	I/O cable – pigtail (order 2 for QD75M4 or QD75MH4) 10 meter
QD75MCBL15M	QD75M and QD75MH	I/O cable – pigtail (order 2 for QD75M4 or QD75MH4) 15 meter
MR-J2HBUS05M	QD75M	SSCNET II cable (QD75M to MR-J2S-B) and (MR-J2S-B to MR-J2S-B) 0.5 meter
MR-J2HBUS1M	QD75M	SSCNET II cable (QD75M to MR-J2S-B) and (MR-J2S-B to MR-J2S-B) 1.0 meter
MR-J2HBUS5M	QD75M	SSCNET II cable (QD75M to MR-J2S-B) and (MR-J2S-B to MR-J2S-B) 5.0 meter
MR-J3BUS015M	QD75MH	SSCNET III (plastic) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 0.15 meter
MR-J3BUS03M	QD75MH	SSCNET III (plastic) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 0.3 meter
MR-J3BUS05M	QD75MH	SSCNET III (plastic) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 0.5 meter
MR-J3BUS1M	QD75MH	SSCNET III (plastic) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 1 meter
MR-J3BUS3M	QD75MH	SSCNET III (plastic) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 3 meter
MR-J3BUS5M-A	QD75MH	SSCNET III (plastic) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 5 meter
MR-J3BUS10M-A	QD75MH	SSCNET III (plastic) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 10 meter
MR-J3BUS20M-A	QD75MH	SSCNET III (plastic) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 20 meter
MR-J3BUS30M-B	QD75MH	SSCNET III (glass) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 30 meter
MR-J3BUS40M-B	QD75MH	SSCNET III (glass) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 40 meter
MR-J3BUS50M-B	QD75MH	SSCNET III (glass) cable (QD75MH to MR-J3-B) and (MR-J3-B to MR-J3-B) 50 meter
MR-A-TM (Note)	QD75M	SSCNET II terminator for final MR-J2S-B servo
Manuals		
IB(NA)66900	QD75M and QD75MH	GX-CONFIG-QP-C1 software operating manual
IB(NA)0300062	QD75M	QD75M user manual (details)
IB(NA)0300031	QD75M	QD75M user manual (hardware)
IB(NA)0300117	QD75MH	QD75MH user manual (details)
IB(NA)0300099	QD75MH	QD75MH user manual (hardware)

Note: Please refer to the Servomotor and Amplifiers Section in this Product Selection Guide to select servo amplifier and motor model numbers.

QD75M Performance Specifications

Module			QD75M1	QD75M2	QD75M4
Number of Control Axes			1 Axis	2 Axis	4 Axis
Interpolation Function			None	2-axis linear interpolation 2-axis circular interpolation	2, 3 or 4 -axis linear interpolation 2-axis circular interpolation
Control System			PTP (Point to Point) control, path control (both linear and arc can be set) speed control, speed/position switching control, position/speed switching control		
Control Unit			mm, inch, degree, PLS		
Positioning Data			600 data (positioning data No.: 1 to 600) / axis. Can be set with peripheral device or sequence program		
Backup			Parameters, positioning data and block start data can be saved on flash ROM (battery-less backup)		
Positioning	Positioning Range	Positioning System	PTP control: Incremental system/Absolute system Speed-position switching control: Increment system/absolute system (*1) Position-speed switching control: Incremental system Path control: Incremental system/absolute system		
		Absolute Data Method	-214748364.8 to 214748364.7 (µm) -21474.83648 to 21474.83647 (inch) 0 to 359.99999 (degree) -2147483648 to 2147483647 (pulse)		
		Incremental Method	-214748364.8 to 214748364.7 (µm) 21474.83648 to 21474.83647 (inch) 21474.83648 to 21474.83647(degree) -2147483648 to 2147483647 (pulse)		
		Speed-Position Switching Control (INC Mode) Position-Speed Switching Control	0 to 214748364.7 (µm) 0 to 21474.83647 (inch) 0 to 21474.83647 (degree) 0 to 2147483647 (pulse)		
		In Speed-Position Switching Control (ABS Mode) (*1)	0 to 359.99999 (degree)		
		Speed Command	0.01 to 2000000.00 (mm/min) 0.001 to 200000.000 (inch/min) 0.001 to 200000.000 (degree/min) 1 to 10000000 (pulse/s)		
	Acceleration / Deceleration Process		Automatic trapezoidal acceleration/deceleration, S-pattern acceleration/deceleration		
	Acceleration / Deceleration Time		1 to 8388608 (ms) Four patterns can be set for each of acceleration time deceleration time		
	Sudden Stop Deceleration Time		1 to 8388608 (ms)		
Starting Time (ms) (*2)			1-axis linear control: 6 1-axis speed control: 6 2-axis linear interpolation control (Composite speed): 7 2-axis linear interpolation control (Reference axis speed): 7 2-axis circular interpolation control: 7 2-axis speed control: 6 3-axis linear interpolation control (Composite speed): 7 3-axis linear interpolation control (Reference axis speed): 7 3-axis speed control: 6 4-axis linear interpolation control: 7 4-axis speed control: 7		**Factors in starting time extension** The following times will be added to the starting time in the described conditions: • S-pattern acceleration/deceleration is selected: 0.5 • Other axis is in operation: 1.5 • During continuous positioning control: 0.2 • During continuous path control: 1.0
External Wiring Connection System			40-pin connector		
Applicable Wire Size			0.3 mm² (for A6CON1), AWG #24 to 28 (twisted) or AWG #30 (single wire) (for ACON3)		
Applicable Connector for External Device			A6CON1, A6CON2, A6CON3 (sold separately)		
SSCNET II Cable			MR-J2HBUS_M	Connection between QD75M and (MR-J2S-B/MR-J2-Jr) Connection between (MR-J2S-B/MR-J2-Jr) and (MR-J2S-B/MR-J2-Jr). (0.5m (1.64 ft.), 1m (3.28 ft.), 5m (16.4 ft.))	
SSCNET II Cable Overall Length (m)			30	30	30
Internal Current Consumption (5 VDC)			0.40A	0.40A	0.40A
Flash ROM Write Count			Max. 100000 times		
Number of Occupied I/O Points			32 (I/O assignment: 32 points for intelligent function module)		
Size (mm)			98 (H) x 27.4 (W) x 90 (D)		
Weight kg (lb)			0.15 (0.33)	0.15 (0.33)	0.16 (0.35)

Notes:
1. In speed switching control (ABS mode), the control unit available is "degree" only.
2. Using the "Pre- reading start function", the virtual start time can be shortened.

QD75MH Performance Specifications

Module		QD75MH1	QD75MH2	QD75MH4
No. of Control Axes		1 axis	2 axis	4 axis
Interpolation Function		None	2-axis linear interpolation 2-axis circular interpolation	2-, 3-, or 4-axis linear interpolation 2-axis circular interpolation
Control System		PTP (Point To Point) control, path control (both linear and arc can be set), speed control, speed position switching control, position-speed switching control		
Control Unit		mm, inch, degree, PLS		
Positioning Data		600 data (positioning data Nos. 1 to 600)/axis (Can be set with peripheral device or PLC program.)		
Backup		Parameters, positioning data, and block start data can be saved on flash ROM (battery-less backup)		
Positioning	Positioning System	PTP control: Incremental system/absolute system Speed-position switching control: Incremental system/absolute system (*1) Position-speed switching control: Incremental system Path control: Incremental system/absolute system		
	In absolute system	–214748364.8 to 214748364.7 (μm) • –21474.83648 to 21474.83647 (inch) 0 to 359.99999 (degree) • –2147483648 to 2147483647 (PLS)		
	In incremental system	–214748364.8 to 214748364.7 (μm) • –21474.83648 to 21474.83647 (inch) –21474.83648 to 21474.83647 (degree) • –2147483648 to 2147483647 (PLS)		
	In speed-position switching control (INC mode) / position-speed switching control	0 to 214748364.7 (μm) • 0 to 21474.83647 (inch) 0 to 21474.83647 (degree) • 0 to 2147483647 (PLS)		
	In speed-position switching control (ABS mode) (*1) Positioning range	0 to 359.99999 (degree)		
	Speed Command	0.01 to 20000000.00 (mm/min) • 0.001 to 2000000.000 (inch/min) 0.001 to 2000000.000 (degree/min) (*3) • 1 to 50000000 (PLS/s)		
	Acceleration/ Deceleration Process	Automatic trapezoidal acceleration/deceleration, S-pattern acceleration/deceleration		
	Acceleration/ Deceleration Time	1 to 8388608 (ms) Four patterns can be set for each of acceleration time and deceleration time		
	Sudden Stop Deceleration Time	1 to 8388608 (ms)		
Starting Time (ms) (*2)		1-axis linear control: 3.5 1-axis speed control: 3.5 2-axis linear interpolation control (Composite speed): 4.0 2-axis linear interpolation control (Reference axis speed): 4.0 2-axis circular interpolation control: 4.0 2-axis speed control: 3.5 3-axis linear interpolation control (Composite speed): 4.0 3-axis linear interpolation control (Reference axis speed): 4.0 3-axis speed control: 3.5 4-axis linear interpolation control: 4.0 4-axis speed control: 4.0		**Factors in starting time extension** The following times will be added to the starting time in the described conditions: • S-pattern acceleration/ deceleration is selected: 0.5 • Other axis is in operation: 1.5 • During continuous positioning control: 0.2 • During continuous path control: 1.0
External Wiring Connection System		40-pin connector		
Applicable Wire Size		0.3 mm^2 (when A6CON1 and A6CON4 are used), AWG#24 to 28 (when A6CON2 is used), AWG#28 (twisted)/AWG#30 (single wire) (when A6CON3 is used)		
Applicable Connector for External Device		A6CON1, A6CON2, A6CON3, A6CON4 (sold separately)		
SSCNET III Cable		MR-J3BUS☐ ☐M (*4)	• Connection between QD75MH and MR-J3-☐ ☐B. • Connection between MR-J3-☐ ☐B and MR-J3-☐ ☐B. • Standard code for inside panel. • 0.15m (0.49ft.), 0.3m (0.98ft.), 0.5m (1.64ft.), 1m (3.28ft.), 3m (9.84ft.)	
		MR-J3BUS☐ ☐M-A (*4)	• Connection between QD75MH and MR-J3-B. • Connection between MR-J3--☐ ☐B and MR-J3--☐ ☐B. • Standard code for outside panel. • 5m(16.40ft.), 10m (32.81ft.), 20m (65.62ft.)	
		MR-J3BUS☐ ☐M-B (*4)	• Connection between QD75MH and MR-J3-☐ ☐B. • Connection between MR-J3-☐ ☐B and MR-J3-☐ ☐B. • Long distance cable. • 30m (98.43ft.), 40m (131.23ft.), 50m (164.04ft.)	
SSCNET III Cable Overall Length (m)		50	50	50
Internal Current Consumption (5VDC)		QD75MH1 : 0.60A	QD75MH2 : 0.60A	QD75MH4 : 0.60A
Flash ROM Write Count		Max. 100000 times		
No. of Occupied I/O Points (Points)		32 (I/O assignment: 32 points for intelligent function module)		
Outline Dimensions (mm (inch))		98 (3.86) (H) x 27.4 (1.08) (W) x 90 (3.54) (D)		
Weight kg (lbs)		0.15 (0.33)		

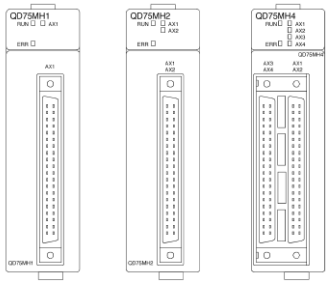
Notes:

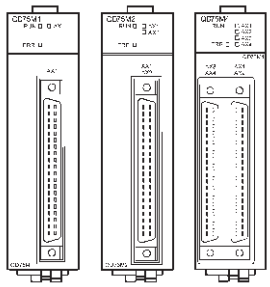
1. In speed-position switching control (ABS mode), the control unit available is "degree" only. (For details, refer to "Section 9.2.17 Speed position switching control (ABS mode)".)
2. Using the "Pre-reading start function", the virtual start time can be shortened. (For details, refer to "Section 12.7.8 Pre-reading start function".)
3. When "Speed control 10 x multiplier setting for degree axis function" is valid, this will be the setting range 0.01 to 20000000.00 (degree/min). (For details, refer to "Section 12.7.11 Speed control 10 x multiplier setting for degree axis function".)
4. ☐ ☐ = Cable length. (015: 0.15m (0.49ft.), 03: 0.3m (0.98ft.), 05: 0.5m (1.64ft.), 1: 1m (3.28ft.), 3: 3m (9.84ft.), 5: 5m (16.40ft.), 10: 10m (32.80ft.), 20: 20m (65.62ft.), 30: 30m (98.43ft.), 40: 40m (131.23ft.), 50: 50m (164.04ft.))

QD75M & QD75MH Input/Output (X/Y) Comparisons

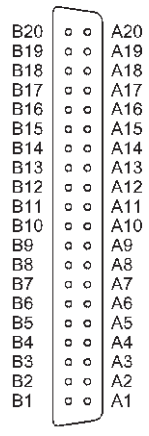
Input (X)		
Name	QD75MH□	QD75M□
(QD75) READY	X00	
Axis 1 Start complete	X10	
Axis 2 Start complete	X11	
Axis 3 Start complete	X12	
Axis 4 Start complete	X13	
Axis 1 BUSY	X0C	
Axis 2 BUSY	X0D	
Axis 3 BUSY	X0E	
Axis 4 BUSY	X0F	
Axis 1 Positioning complete	X14	
Axis 2 Positioning complete	X15	
Axis 3 Positioning complete	X16	
Axis 4 Positioning complete	X17	
Axis 1 Error detection	X08	
Axis 2 Error detection	X09	
Axis 3 Error detection	X0A	
Axis 4 Error detection	X0B	
Axis 1 M code ON	X04	
Axis 2 M code ON	X05	
Axis 3 M code ON	X06	
Axis 4 M code ON	X07	
Synchronization flag	X01	
Use prohibited	X02, X03, X18 to X1F	

Output (Y)		
Name	QD75MH□	QD75M□
Axis 1 Positioning start	Y10	
Axis 2 Positioning start	Y11	
Axis 3 Positioning start	Y12	
Axis 4 Positioning start	Y13	
Axis 1 STOP	Y04	
Axis 2 STOP	Y05	
Axis 3 STOP	Y06	
Axis 4 STOP	Y07	
All axis servo ON	Y01	
Axis 1 Forward run JOG start	Y08	
Axis 1 Reverse run JOG start	Y09	
Axis 2 Forward run JOG start	Y0A	
Axis 2 Reverse run JOG start	Y0B	
Axis 3 Forward run JOG start	Y0C	
Axis 3 Reverse run JOG start	Y0D	
Axis 4 Forward run JOG start	Y0E	
Axis 4 Reverse run JOG start	Y0F	
PLC READY	Y00	
Axis 1 Execution prohibition flag	Y14	
Axis 2 Execution prohibition flag	Y15	
Axis 3 Execution prohibition flag	Y16	
Axis 4 Execution prohibition flag	Y17	
Use prohibited	Y02, Y03, Y18 to Y1F	





Pin Layout	QD75MH□				QD75M□			
	Axis 2 (AX2)		Axis 1 (AX1)		Axis 2 (AX2)		Axis 1 (AX1)	
	Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
	1B20	PULSER B–	1A20	PULSER B+	1B20	PULSER B–	1A20	PULSER B+
	1B19	PULSER A–	1A19	PULSER A+	1B19	PULSER A–	1A19	PULSER A+
	1B18	No connect	1A18	No connect	1B18	No connect	1A18	No connect
	1B17	No connect	1A17	No connect	1B17	No connect	1A17	No connect
	1B16	No connect	1A16	No connect	1B16	No connect	1A16	No connect
	1B15	5V	1A15	5V	1B15	No connect	1A15	No connect
	1B14	SG	1A14	SG	1B14	No connect	1A14	No connect
	1B13	No connect	1A13	No connect	1B13	No connect	1A13	No connect
	1B12	No connect	1A12	No connect	1B12	No connect	1A12	No connect
	1B11	No connect	1A11	No connect	1B11	No connect	1A11	No connect
	1B10	No connect	1A10	No connect	1B10	No connect	1A10	No connect
	1B9	No connect	1A9	No connect	1B9	No connect	1A9	No connect
	1B8	EMI.COM	1A8	EMI	1B8	No connect	1A8	No connect
	1B7	COM	1A7	COM	1B7	COM	1A7	COM
	1B6	COM	1A6	COM	1B6	COM	1A6	COM
	1B5	CHG	1A5	CHG	1B5	CHG	1A5	CHG
	1B4	STOP	1A4	STOP	1B4	STOP	1A4	STOP
	1B3	DOG	1A3	DOG	1B3	DOG	1A3	DOG
	1B2	RLS	1A2	RLS	1B2	RLS	1A2	RLS
	1B1	FLS	1A1	FLS	1B1	FLS	1A1	FLS



Front view of the module

Notes:

1. The pin arrangement of the axis 3 (AX3)/axis 4 (AX4) of QD75MH□ □ and QD75M□ □ is the same.